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Ssu-Pin Ma

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10/04/2004

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EXAMINER

WARREN, MATTHEW E

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/821,521  
Filing Date: March 29, 2001  
Appellant(s): MA ET AL.

**MAILED**

OCT 04 2004

**GROUP 2800**

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Randy Tung  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed September 23, 2003.

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**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

No amendment after final has been filed.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

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**(7) Grouping of Claims**

Appellant's brief includes a statement that claims of Group I, claims 9 , 11-14, and 16 and Group II, claims 15 and 17 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

6,292,401 B1	Jacobson et al.	9-2001
5,396,101	Shiga	3-1995
6,452,278 B1	DiCaprio et al.	9-2002

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 9, 11-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson et al. (US 6,294,401 B1) in view of Shiga (US 5,396,101).

Jacobson et al shows (fig. 4) a microelectronic fabrication comprising a substrate (410), a spirally patterned conductor layer (426) formed over the substrate wherein the spiral pattern terminates in a microelectronic structure (425) formed within the center of the spirally patterned conductor layer. The spirally patterned conductor layer forms a planar spiral inductor and the microelectronic structure comprises a series of electrically interconnected sub-patterns. The substrate is employed within a microelectronic fabrication of integrated circuit microelectronic fabrications. The microelectronic structure is selected from the group consisting of bond pads. The microelectronic structure is actually a capacitor connected with a bond pad. (col. 7, lines 3-30). The spiral pattern is in the shape of a rectangle and comprises more than one loop. The spiral patterned conductor layer is formed of a conductor material consisting of non-magnetic metal (col. 7, lines 3-8). Jacobson shows all of the elements of the claims except the at least four electrically interconnected sub-patterns to attenuate eddy currents in the microelectronic structure. It would have been obvious to one of ordinary skill in the art to form three, four, etc., sub patterns since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Shiga shows (figs. 2 and 3) an inductance element that has a core (14) formed in the center of a substrate. The core comprises a plurality of circuit elements (14a), at least 4 of them. The elements attenuate eddy currents in the structure and ultimately the operating frequency is

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elevated (col. 4, lines 27-31). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the interconnected sub-patterns of Jacobson by adding more sub-patterns as taught by Shiga to attenuate eddy currents in a microelectronic device and ultimately increase the operating frequency.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson et al. (US 6,294,401 B1) in view of DiCaprio et al. (US 6,452,278 B1).

Jacobson et al shows (fig. 4) a microelectronic fabrication comprising a substrate (410), a spirally patterned conductor layer (426) formed over the substrate wherein the spiral <sup>pattern</sup> ~~pattern~~ terminates in a microelectronic structure (425) formed within the center of the spirally patterned conductor layer. The spirally patterned conductor layer forms a planar spiral inductor and the microelectronic structure comprises a series of electrically interconnected sub-patterns. Although Jacobson shows bond pads, the bond wire bonded to the microelectronic structure has not been illustrated. DiCaprio et al. shows (fig. 1) shows a semiconductor device in which a die has low loop bond wires (24) connected to bond pads to help minimize the height of the package (col. 2, lines 48-50). Neither reference shows that the bond wire has a plurality of loops. It would have been obvious to one of ordinary skill in the art to form three, four, etc., sub loops in a bond wire since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Therefore it would have been obvious to one of ordinary skill in the art at the

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time the invention was made to modify the bond pads of Jacobson by attaching a low loop bond wire as taught by DiCaprio to minimize the height of the package.

**(11) Response to Argument**

The appellant primarily argues that the cited references of Jacobson, Shiga, and DiCaprio cannot be combined as stated in the rejection, and that Jacobson and DiCaprio do not show the plurality of bond wire loops. The appellant asserts that the identification tag of Jacobson is not powered in a static state as opposed to the inductor of Shiga, thus being non analogous. The appellant also asserts that the identification tag of Jacobson does not require a bond wire and cannot be combined with DiCaprio. The examiner believes that the cited references are combinable and show all of the elements of the claims.

In re the arguments that Jacobson and Shiga cannot be combined, the examiner believes that both references are combinable because both inventions pertain to inductor devices. Although Jacobson discloses a spiral inductor not being powered in a static state and operating at a resonant frequency, Jacobson may still benefit from the interconnected subpatterns of Shiga. As stated in the rejection, the subpatterns of Shiga attenuate eddy currents and elevate and operational frequency. The subpatterns of Shiga may be applied to the patterns of Jacobson to elevate the operational frequency of Jacobson to a desired resonant frequency when the ID tag is activated by the magnetic field. Even if that were not the case, Jacobson already shows in figure 4 a series of at least two subpatterns (425) that are interconnected. Since Shiga teaches

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that interconnected subpatterns attenuate eddy currents, then the two interconnected subpatterns of Jacobson also inherently attenuate eddy currents. In such a case, Shiga is merely a teaching reference and not necessarily relied upon to cure any deficiencies in Jacobson. However, the examiner still believes that Shiga and Jacobson are combinable inventions because both deal with the operation of inductors. Although Jacobson's inductor does not have a static power source, at some point the inductor is being powered such as when a magnetic field is applied. At that moment, when the ID tag is being activated, attenuation of eddy currents may be need. Jacobson does not specifically teach away from eddy currents, so it is reasonable to expect that attenuation of eddy currents in an any type of inductor device is desirable. Both Jacobson and Shiga's inventions discloses inductors and therefore are analogous references that can be combined with each other.

In re the arguments that Jacobson and DiCaprio cannot be combined, the examiner also believes that the combination is proper. The appellant stated that Jacobson would not need a bond wire having a loop as shown in DiCaprio because the ID tag of Jacobson is only activated in a magnetic field. However, Jacobson discloses (col. 7, lines 18-30) that the inductor coil is also connected to a logic circuit module. Figure 4 of Jacobson shows that the left pad (not labeled) interconnected to the capacitor pad (425) may be an additional bond pad and that both ends of the conductor coil is connected to capacitor pad portions (425, 430). A bond wire may be needed to connect to the logic module (not shown) on another portion of the tag. A low loop bond



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wire as taught by DiCaprio would provide the connection between the pad of the inductor to the logic module and help minimize the height or thickness of the ID tag. Again, a plurality of loops is not distinguishable over the cited art because said plurality are merely a duplication of a known loop. If DiCaprio teaches that a bond wire having one loop minimizes a package height, then two, or three loops <sup>will</sup> ~~might~~ minimize the package further. Thus the cited references show all of the claims and the rejections above are proper.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

MEW

*MEW*

September 26, 2004

Conferees

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